A CRITICAL ANALISE OF POSTURAL DEFORMITIES AND PREVALENCE OF SCHOOL CHILDREN'S OF HYDERABAD KARNATAKA REGION

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IN

PHYSICAL EDUCATION

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INTRODUCTION:

Origin of the problem:

Human body has an upright posture which supports his body on his two legs, whereas most mammals that carry themselves on four. This condition has challenges significant changes in man's mechanism of sitting, standing, sleeping, lying, running, blood circulation, respiration, muscular growth and development of body coordination etc. it also has an impact on placing visceral organs, heart, lungs, liver, kidneys, and intestines. Accordingly, to all human beings this various systems of body require stability and movements to perform their work with efficiency and least strain on the body organs. (M.L.kamlesh)

Posture is defined as, "the position of one or many body segments in relation to one another and their orientation in space" (Ham et al, p26). Body 'segments' are referred to as the head, thorax, pelvis, lower limbs and feet, whilst the body 'linkages' are considered as the spinal joints, hips, knees, ankle and shoulder joints (Pope 2002). When considering posture, one should not consider it as static, but as an active and dynamic process which underpins movement and function (Hong2005). Normally, our postures continuously shift and change position to facilitate movement to engage in functional activities. Pope (2002) identifies that posture is a prerequisite for movement. Howe and Oldham (2001) also highlight that posture and movement are inextricably linked, referring to posture as a temporary arrested movement, which is in a constant state of change. From a neuron developmental perspective Nichols (2001) suggests that the development of postural control and acquisition of motor milestones are intrinsically linked. Ham et al (1998) support this assumption highlighting that there is constant neuron motor activity being used to maintain body balance and posture. Angstrom (2002) further suggests that biological and physiological influences affect body position and posture. This is also in addition to the somatosensory, vestibular and musculoskeletal systems (Nichols 2001).

The importance of physical program is linked to a high quality of life as well as academic achievements it is well documented that regular physical activity participation in childhood and adolescence enhance strength, health build, healthy bones and muscular power hip control weights, reduce anxiety and stress increases self-esteem and improve all the internal and external physiological as well as psychological system of the body being physically fit is an essential requirement of the human body.

It is rightly said that children are the nation builders .21 century education has project based curriculum for life engaging children in addressing real world problem, issue important to humanity, like global warming up, earthquake tsunami and human hazards which are serious matter of human progress.

Today's children are witnessed as digital natives moving with 3rd generation & latest virtual reality technology to cope with the need of the hour finding e learning system, smart phones, laptops and computers as their best devices for acquiring knowledge but apart from it, if a child is not physically fit he cannot fight with critical circumstances of the situation. Therefore, child physical fitness has a vital role in functional continuity of organ system of the body, which indeed affects his social, moral, Physical and mental health

Several researches indicate that postural deformities have a negative effect on physical fitness and may result in high physical strain during the study period of the child. Keeping in view the fact the student's physical fitness has important health consequences during their study; a large number of studies on effect of postural deformities on physical fitness have been reported from different countries. step to the world data on postural deformities and physical fitness of students from Denmark (knutgen1961) England (cambell,s & Pohdof,1961) South Africa (slov1966) Belgium (Hebbelink& Borus1966) Israel (Ruskin 1978) Japan (Iskiko1978) are available in the literature all this reports made the health planners realize the importance and the contribution of health education and physical fitness in the development of total fitness.

Physical fitness has an important role in the education of new generation in the frame of physical and mental health and nowadays it is placed as a peace of education in the developed society's education programs and can be placed in a special order in the subject of school children's

Therefore these study endowers to examine postural deformities prevalence in school children's in Hyderabad Karnataka region of Karnataka. And its effect on their selected physical fitness components

Now let us see what are posture and its deformities

1. **POSTURE**

Posture is the correct alignment of all the body segments (Dr.Shyamanand) it is difficult to define posture in absolute terms because it varies from person to person. The concept of posture varies with an actor, an artist and sportsmen. In a multi segmented and most complicated structure like the human body we cannot conceive of only one single posture in performing different actives, with different purposes in different body positions. In sitting, lying, standing, walking, running, throwing, jumping, climbing etc. the alignment of various parts of the body is different so are the postures resulting from movement mechanics. In other words, different require the body to adopt different posture most suitable to the performance of related skills in the respective movements. In simple words, posture signifies movement defines posture however posture is usually defined as a relative arrangement body parts or segments or as accustomed position which enable the body to function effectively (Dr.M.L.Kamlesh) a posture indicates the right body position so assumed while performing an action or otherwise that there is economy of effort and optimal gain in efficiency.

Postures are very truly expressed our physical appearance and mental status when we are happy, cheerful and optimistic we walk with elastic and stingy steps, holding the head erect and abdomen flat but we are in a pensive or sad mod our energy level is low and our walk lack enthusiasm zeal and vigor and is often uncoordinated similarly the way we recline in the chair or on the bed tells a lot `about what goes in our mind at that particular time, the way we walk depends mostly on the way we think and feel and the way we stand it reflects a lot about our confidence level in various compartment of life.

There are sitting, lying, standing(static posture) and walking running dynamic posture all this have bearing on our activities and they have a great impact on our total body and wellbeing to a great extent in these positions as in others, we require to alter our body alignment when we get tired of keeping ourselves in a single position for a prolong period we can't sit crossed legged or on a chair keep reclining on the left or

right side or standing at attention all the time we change our position or shift our body weight from one side to the other so that we are not tired and stress is not occurred. Walking is the only movement in a single skill or activity.

Good postures.

A good posture is that in which the skeleton is held erect and if an imaginary vertical line is drawn from the highest point of the skull downwards, it should pass through the weight bearing surfaces of the cervical and lumbar vertebrae and through the center of the hip knee and ankle joint, and where minimum cost of energy is required in balancing and maximum advantage is taken in transferring body weight. Good posture is vital for functional strength and motor control and is absolutely necessary to produce efficient movement along the kinetic chain there is no single good posture there are many. Goodness of a posture consists in alignment of the body parts, in relaxation rather than tension and readiness for action.

Why good posture is important

The body is designed to work at the most economical level, because to save energy for future uses, according to research a man spend more energy maintaining misaligned posture which can cause joints and muscle pain in the body. We compromise our body's integrity by not maintaining proper posture, decreased in lots of detrimental conditions resulting within the body decreased blood circulation to the various parts of the body.

Women in general tend to have poor posture because of many factors. They have job which have improper postural habits causing damages to the posture, they also wear high heeled footwear. Which leads to an alteration and compensation of their posture The development of breast tissues or the augmentation of breasts can cause postural change. women also have less musculature to maintain proper alignment, leading to rounded shoulders, forward head posture , hyper extended knees and increased thoracic and lumbar curves.

To avoid postural deformities and disorders and to maintain a health posture regular physical exercise program must be implemented.

Important postures.

Broadly there are two types of postures.

A) **Inactive posture** – When a person is sleeping or having a rest and body require minimum muscular efforts.

B) **Active posture-** Where integrated muscular actively required. Active posture may be static or dynamic. Static posture is one where the body is passive not active or changing stance. And forces are acting in equilibrium. Dynamic posture is one where the body is motion active and changing its stance, postural position whether inactive or active (Static and dynamic) can be broadly classified in four categories.

1) Standing position or posture
2) Sitting position or posture
3) Lying position or posture
4) Walking position or posture

REVIEW OF RELATED LITERATURE

Lim et.al. (2015) investigated Foot deformity, flat feet, and the use of ill-fitting footwear are common in children and adolescents with Down syndrome (DS). The aim of this study was to determine whether these observations are associated with foot-specific disability in this group. Methods: A cross-sectional study design. Foot structure (foot posture determined using the Arch Index, presence of hallux valgus and lesser toe deformities) and footwear fit (determined by length and width percentage differences between the participant's foot and footwear) were assessed in 50 participants with DS (22 females,28 males) aged five to 18 with a mean (SD) age of 10.6 (3.9) years. Foot-specific disability was determined using the parent-reported Oxford Ankle Foot Questionnaire for Children (OxAFQ-C). Associations between foot structure and footwear fit with the four domains (Physical, School and play, Emotional and Footwear) of the OxAFQ-C were determined using multivariate regression modeling. Results: The mean (SD) Arch Index was 0.29 (0.08), and the prevalence of flat feet, hallux valgus and lesser toe deformities was 76%, 10% and 12% respectively. Few participants wore footwear that was too short (10%), but the use of footwear that was too narrow was common (58%). The presence of hallux valgus was significantly associated with increased disability for the OxAFQ-C School and play domain scores. The use of narrow-fitting footwear was significantly associated with increased levels of disability for the OxAFQ-C Physical, School and play, and Emotional domains. However, these variables only explained between 10% to 14% of the variance in the OxAFQ-C domain scores. There were no significant associations between foot structure and footwear fit with the OxAFQ-C Footwear domain scores. Conclusions: Flatter feet and lesser toe deformities are not associated with foot-specific disability in children and adolescents with DS. Hallux valgus is associated with foot-specific disability during school and play activities. Ill-fitting footwear (too narrow) is common and is associated with foot-specific disability. Further research is required to identify if the relationship between narrow-fitting footwear and foot-specific disability is causal, and to identify other factors associated with foot-specific disability in children and adolescents with DS.

Dede, et.al (2014) he and his fellow research persons studied the Spinal fusion procedures that are the mainstay of the treatment of progressive or severe curves in adolescents and adults are not suitable for most young children as there is a large magnitude of remaining growth. Early spinal fusion stunts the growth of the thorax and may interfere with the development of the lungs. Therefore, in children with early-onset scoliosis, 'growth friendly' instrumentation systems have been utilized to control the deformity while allowing the growth of the spine and the thoracic cage.\n\ FINDINGS: The experience with growing rods has been increasing, along with expanding indications. Several self-lengthening instrumentation systems have been introduced aiming for guided spinal growth. There has been considerable progress in the clinical and laboratory studies using magnetically controlled growing rod constructs. Growing rods and vertical expandable prosthetic titanium rib (VEPTR) systems provide deformity control while allowing for spinal growth along with a risk of spontaneous vertebral fusions. VEPTR may cause rib fusions as the implants overlie the thoracic cage and, therefore, the use in pure spinal deformities is controversial. SUMMARY: There have been exciting recent advances concerning the treatment of spinal deformities in young children. Despite these advances, the surgical treatment of early-onset scoliosis remains far from optimal and more development is on the way.

Cheldavi, et.al (2014) Purpose The aim of this study was to investigate the effect of balance training intervention in children with autism spectrum disorder (ASD), and to explore the relative role of the sensory systems in such kids. Methodology for this study they recruited 20 school children (IQ > 80) diagnosed with ASD, and categorized them in two groups; a 10-member training group (average age: 7.70?? 1.05) and a 10-member control group (average age: 7.90?? 1.10). Thus, following a six-week-long balance training intervention in four conditions of bipedal upright stance [compliant (Foam) vs. non-compliant (Hard) with eyes-open (EO) vs. eyes-closed (EC)], they examined measures such as mean velocity (V), anteroposterior (AP) and mediolateral (ML) axis displacement, and compared the results to those calculated prior to the initiation of the intervention using MANOVA test. Results this study showed that the balance training program efficiently improved the postural control in ASD suffering children, and that removing the visual and plantar

proprioceptive information led to increased sway in both groups. The training group performed significantly better than the control group in all conditions. Conclusion It is thus concludable that children suffering from ASD can benefit from such balance training programs to improve their balance and postural control.

Memari, et.al (2014)recent research in motor control shows the interactive role of cognitive factors in postural control. However, there is little understanding in how children with autism spectrum disorder (ASD) develop their postural behaviors. This study compares the interference of visual or auditory tasks on postural control in children with ASD. They examined 19 children with ASD (10-15 years old) and also 28 age-matched typically developing (TD) children. They were asked to perform two tasks during postural control: (1) a visual searching task (2) an auditory digit span task. Postural performances were measured with a force platform. Results showed that children with ASD indicated higher postural sway scores in visual task vs. auditory task; as root mean square ($p=0.04$), mean velocity ($p=0.01$) and sway area ($p=0.02$) but TD children scores remained unchanged. Children with ASD also showed significantly higher sway scores than TD children in all parameters. We conclude that in addition to primary differences in patterns of postural control of children with ASD compared to TD children, visual and auditory tasks may differently influence the postural control in this population.

Statement of the problem:

In the light of the above, the investigator become interested in determining the Prevalence of Postural deformities in School children's Hyderabad Karnataka region of Karnataka, the deformities selected were Bow legs, Knock Knee and flat foot and The problem will stated as "**A CRITICAL ANNALISE OF POSTURAL DEFORMITIES AND PREVALENCE OF SCHOOL CHILDREN'S OF HYDERABAD KARNATAKA REGION"** Taken up to assess the level of selected Postural deformities occurrence and its effect on selected physical fitness components.

Hypothesis

1. There would be no postural deformities in school children's in Hyderabad Karnataka region of Karnataka state.
2. There would be no postural deformities with respect to Bow legs in school children's in Hyderabad Karnataka region of Karnataka state.
3. There would be no postural deformities with respect to Knock Knee in school children's in Hyderabad Karnataka region of Karnataka state.
4. There would be no postural deformities with respect to Flat Foot in school children's in Hyderabad Karnataka region of Karnataka state.

OBJECTIVE OF THE STUDY

PRIMARY OBJECTIVE:

The Primary aim of the study was to determine the Prevalence of Postural deformities in School children of Hyderabad Karnataka region of Karnataka.The deformities selected were Kyphosis, Scoliosis, Bow legs, Knock Knee and Flat foot and their effect on selected Physical fitness components agility, explosive leg strength, Speed.

SECONDARY OBJECTIVES

1. The objective was to study and examine the prevalence of postural deformities in school children's Hyderabad Karnataka region of Karnataka state.
2. The objective was to study and examine the prevalence of Bow legs postural deformity in school children's in Hyderabad Karnataka region of Karnataka state.
3. The objective was to study and examine the prevalence of Knock Knee postural deformity in school children's in Hyderabad Karnataka region of Karnataka state.
4. The objective was to study and examine prevalence of Flat Foot postural deformity in school children's in Hyderabad Karnataka region of Karnataka state.

Significance of the study

1. This study will be helpful to the physical education teachers and other people to know the different type of postural deformities in school children.

2. This study will be helpful to the physical education teachers to provide the correct exercise or therapeutic exercise to minimize the postural deformities among school children

3. This study will be helpful to the parents to know the different type of postural deformities prevalence in school children.

4. This study will provide guidelines to parents, coaches, physicians, physical educationist and sports trainers that how to improve the awareness regarding body posture.

DELIMITATIONS

1. The study is delimited to school children's in Hyderabad Karnataka region of Karnataka state.

2. The study is delimited to school children of 9 to 14 years of age group.

3. The study is delimited to boys and girls.

4. The study is delimited to private and government schools of Hyderabad Karnataka region of Karnataka state.

5. The study was delimited to the following Orthopedics variables.

   - Bow legs
   - Knock Knee
   - Flat foot

LIMITATIONS.

1. The background of the children's considered as a limitation of the study.
2. The different morphological characteristics were considered as a limitation of the study.
3. Demographic characteristics were considered as a limitation of the study.

Sample Size:

In the selection of sample from and different school, gender, SES and students will be selected by using purposive and cluster random sampling technique. Total subject are 600 boys 300 and300 girls from staying in residential hostel of District youth sports department they are studying in Govt and private secondary schools of north Karnataka distract of Karnataka will constitute the sample for the study.

Types of sample	Aided	Government	Total
Gulbarga	50	50	100
Bidar	50	50	100
Raichur	50	50	100
Kopal	50	50	100
Yadageri	50	50	100
balary	50	50	100
		Total	600

SOURCE OF DATA

The study depends mainly on primary source of data. The data will collect through A Critical Study of Assessment of Postural Deformities And Prevalence In School Children's of Hyderabad Karnataka Region. The clinical examinations of orthopedics were conduct on the selected samples (school children) to detect postural deformity and physical fitness test were also performed to observe the fitness level of selected fitness components. In collecting the data, the researcher Follow to ethical guidelines, principles, and standards for studies conducted with human beings. Instructions was given to the school children before performing the test by the research scholar.

STATISTICAL TECHNIQUE

The collected data will statistical measure like mean, standard deviation, percentile, fishers exact test will apply. The level significance was $p > 0.05$ Qualitative/Categorical data like age groups, gender, were presented as numbers and percentages. Fisher's exact test was used as a test of significance for qualitative data. Quantitative data like age, weight will presented as mean and confidence interval. Significant difference was considered when p value was less than 0.05.

TOOLS OF THE STUDY

For the present study the appropriate tools were used to collect a proper and authentic data for the study.

Postural deformities were measured by using the following tools and instruments.

Dependent variable

- **Bow legs**

  Steel tape was used to measure the inter condylar distance between the two knees to detect bowing of legs according to clinical examinations of orthopedics (Ronald Mcrae, 1997)

- **Knock knee**

  Steel tape was used to measure the inter malleolar distance between the two ankles to detect knock knee according to clinical examinations of orthopedics (Ronald Mcrae, 1997)

- **Flat foot**

  Flat foot was measured by the wet test (by taking the foot impression on card sheet for further analysis of foot posture)

Subject variables

- Height

  Height was measured by stadiometer.
- Weight

  Weight was measured by digital weighing machine
- Age

  Age was measured by taking the students date of birth record from the school authorities

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